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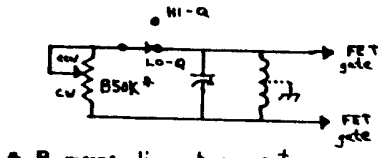
"Easy to Build" Loop vs. Wire Phaser

by Mark Connelly

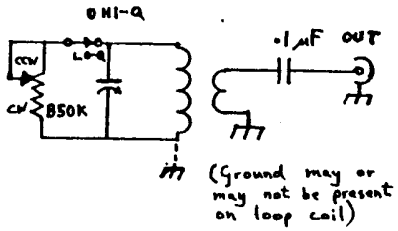
Note 1: Loop must have Q-pot in parallel with tank

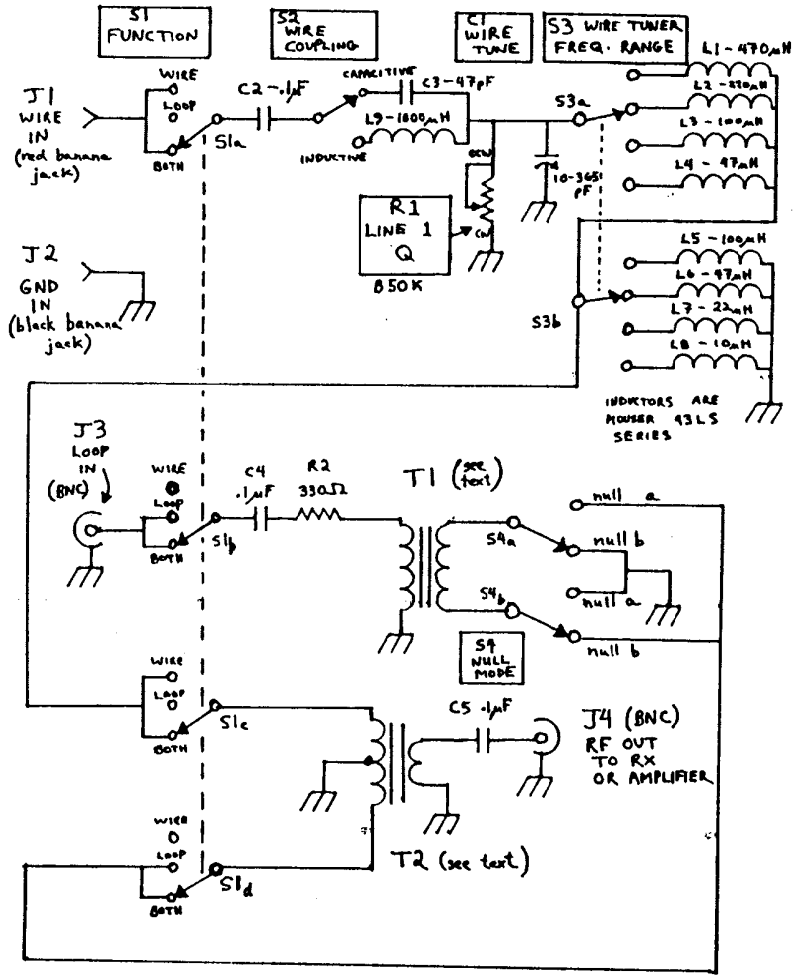
ACTIVE/BALANCED
(Centre-tap ground may or may not be present



* B means linear taper pot

PASSIVE





This should be built in a metal box. I used a 5x4x3 inch bare aluminum box for mine.

Note 2: T1 and T2 are on vectorboards held away from chassis interior by ½" spacers.

T1---Phase-reverser is 30 turns bifilar on Amidon FT-82-77

T2---Balun is 30 turns trifilar on Amidon FT-82-77

See previous "MWDX-2" article (Feb 18/84 DXM) for transformer assembly details.

Nulling Procedure (one of several possible strategies):

Loop Setup: Point loop to favour direction of expected sub-dominant stations, regardless of the bearing of the dominant "pest" station to be nulled.

Peak wire: S1 to WIRE. R1 to maximum ! position. Try peaking wire using S3 & C1) at both the capacitive and inductive-coupled settings of S2. Leave S2 on position yielding stronger/sharper peak. Then set R1 about mid-range.

Peak loop: S1 to LOOP. Peak loop tuning capacitor with loop Q pot switched out, or at maximum Q setting. Then set loop Q pot to about midrange.

Compare levels: (Switch S1 between WIRE and LOOP) Adjust loop pot if loop level is greater; adjust R1 if wire level is greater. Goal is to equalize levels.

Start nulling: Set S1 to BOTH. Go to Null a on S4. Offset the tuning capacitor on the line whose pot was not adjusted in previous step. Look for dip (null). If none occurs, try S4 on Null b, again offsetting the capacitor just adjusted (C1 or the loop tuning cap) to get a dip. If a dip still isn't achieved, set S1 to the line corresponding to that of the offset capacitor and re-peak the capacitor. Then repeat the above step but using the other capacitor (that corresponding to the line whose pot had previously been tweaked).

Finish nulling: Play the loop tuning cap, the previously adjusted pot, and C1 to get final null.

The loop vs. wire phaser should be capable of producing a cardioid type pattern (single-direction null) similar to Ron Schatz' LSCA scheme. Active loops are preferable to passive loops because of the greater signal provided (using a Q-spoiling pot across the loop winding will reduce the received signal strength). If a passive loop is used due to local signal-handling considerations, then the signal from this phasing unit should probably be amplified before being sent to the receiver, preferably using an amplifier with a tuned input, e.g. APT-2 (Nov 5-12/83 DXM) or APT-3 (Feb 11/84 DXM). Wires to be used should be at least 100ft/ 30m long. A vertical wire would be optimum; if horizontal wires are used, it might be helpful to have two wires at a right angle which could be used individually or tied together for quasi-omnidirectionl pickup.